

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Re Patent Application of:
Hatem Hannawa et al.

Application No.: 10/735,392

Confirmation No.: 8983

Filed: December 12, 2003

Art Unit: 3673

For: RE-USABLE NON-METALLIC
CONSTRUCTION FORMING SYSTEM

Examiner: M. Safavi

DECLARATION UNDER 37 CFR 1.132

My name is Hatem Hannawa and I am one of the principals of Arch-Crete, which is the assignee of the above-identified application. I am also one of the inventors. Thus, I am familiar with the above-identified patent application as well as with the development of the re-usable non-metallic construction forming system that embodies the currently pending claims of the application.

Once again I thank the Examiner for the courtesy of a personal meeting to discuss the claimed invention and to show to the Examiner various materials related to the commercial use of the forming system.

As discussed with the Examiner, poured forming systems are well known for the formation of building structures including foundations, walls, floors, and roofs. Typically, a form is created for receiving a flowable, hardenable material, most typically a cementitious material such as concrete. The form includes a face surface for contacting the flowable material.

Most often the form is produced predominantly from wood. The flowable material contacts a generally planar wooden face and cures into its final orientation. However, wood naturally contains oil. The oil mixes with the flowable material, separating any water contained within the flowable material away from the material. The separated water is absorbed into the wooden form, causing water damage to the wooden form. Furthermore, water stains the front surface of the

structure before the structure can completely cure. Additionally, the wooden form is often destroyed upon separation from the flowable material, but includes the advantage of low cost.

More recently, aluminum forms have been used in place of the wooden forms. An advantage of the aluminum forms is that they may include one of a limited number of patterns lightly etched into the face, such that when the flowable material contacts the etched surface, it takes on the mirror image of the pattern. However, aluminum forms have a number of significant disadvantages. For example, the forms are heavy, complicating assembly and disassembly as well as transport. Further, while reusable, the etched patterns are easily subject to damage, and may be readily gouged or otherwise defaced. Moreover, the forms are very expensive to manufacture, particularly with respect to providing a consistent pattern from form to form as they are secured together. Yet a further problem is that only a very limited number of simple, lightly etched patterns may be used, which does not extend more than a slight percentage of the total thickness of the form.

To address the problems of both wooden and aluminum forms, at least one company has created a thin form liner that is disposed between the face of a traditional form and the flowable material. The form liner typically includes a lightly etched pattern. Once the material has cured and the form is removed, the liner is then stripped away from the flowable material. Such a liner is subject to a number of major problems. In view of its limited thickness, it readily expands or contracts because of changes in temperature. As a result, the liners can only be used in a very limited temperature range without damage to the liners or aberrations to the pattern itself. Further, even when used at optimal temperatures, many flowable materials such as type 3 concrete with accelerators create high heat during the curing process, which damages the liner. The liners are also difficult to secure to the face of the form, which results in non-optimal pattern distribution from form to form. As with the aluminum forms, only a limited number of thinly etched patterns may be used. Moreover, the use of a deeper pattern is often not possible without damage to the liner or at the very least significant distortion to the pattern. A comparison chart that we put together in 2004 showing the advantages of the inventive Arch-Crete form and traditional form liners is attached as Exhibit A. Information on liner usage and cost comparison that we also put together in 2004 is

attached as Exhibit B.

COMMERCIAL SUCCESS

Subsequent to the filing of our patent application we have been commercializing our reusable non-metallic construction forming system, called the Arch-Crete construction forming system, world-wide. Attached as Exhibit C is a copy of a brochure showing the use of the forming system for different purposes and in applications throughout the world.

We continue to expand our network of distributors. For example, one of our distributors is Cemex, which is the second or third largest concrete producer in the world. Cemex has signed an exclusive contract for Mexico. Before entering into a contract with Arch-Crete, Cemex did a full year of study and research. Moreover, in a test project Cemex used a single Arch-Crete system to construct nearly 4000 meters (13,123 ft) of a perimeter wall for a housing project in Reynosa. The Forms were then shipped to Torreon for the construction of another perimeter wall that was over 7500 meters (24,600 ft) long.

Another one of our distributors is Symons, which is the largest formwork manufacturer in the world. Symons has signed an exclusive distribution agreement for various geographical regions of the world. Bob Flathau, VP of Engineering for Symons announced at the World of Concrete 2008 that Arch-Crete was the only product of its kind in the world. He indicated that he had searched for new products for Symons and decided that Arch-Crete is the only product that offers a complete solution to the decorative and concrete market using plastic forms. Attached as Exhibit D is a print out of the home page at <http://www.symons.com> on today's date of March 6, 2008. A prominent link to the Arch-Crete construction forming system is shown on the page.

Each of these distributors has negotiated exclusivity with respect to a specific geographical area (e.g., one of the distributors has exclusivity in the United States while another one has exclusivity in Mexico). Our various distributors sell the Arch-Crete construction forming system

throughout the world. We have received inquiries from such diverse locations as:

- UAE
- Middle East (e.g., used in Iraq as part of rebuilding efforts)
- Africa
- India
- China
- South America
- Central America
- Mexico
- Europe

We are consistently receiving positive feedback from end-users in the field using the Arch-Crete construction forming system. One exemplary comment was received from Rick Russel of Dura-Crete-Future Fence, Inc. of Warren, Michigan. His company put up of 1.2 miles of sound barrier wall for the Michigan Department of Transportation using the Arch-Crete construction forming system. He told us: “We saved time and money using Arch-Crete formwork. The lightweight forms are easy to strip and the durability is a real plus.” (Exhibit E).

With respect to sales, since the forms were introduced in 2004, sales have increased twenty (20) percent per year. We anticipate that sales will continue to increase as market acceptance of our innovative product continues to accelerate.

As shown in our marketing material (e.g., Exhibit C) and as recognized by our ever-increasing number of distributors and customers, the Arch-Crete re-usable construction forming system has tremendous advantages over prior products in the market place. Some of these advantages are summarized as follows:

- 1500 + Pours with Minimal Wear – Independent third party testing has proven that our forms are able to withstand in excess of 1500 pours with minimal wear.
- Simple Assembly – Our forms are assembled using the pin and wedge connection disclosed

in the application in combination with apertures in the side walls of the forms using a wedge and pin connection in combination such that the only tool required for assembly is a hammer.

- Easy Hauling – The forms are very durable and able to be transported from job to job on flat bed trailers or even in pick up trucks. Being banged around does not typically damage the forms or impair performance.
- Safe and Durable – The Arch-Crete system has been proven to provide maximum safety for the placing crews during assembly, pouring and removal of the system.
- Easy Handling – Arch-Crete forms are light-weight (under 60 pounds), allowing contractors to handle them easily on the jobsite.
- Low Maintenance – By manufacturing the Arch-Crete forms from a one-piece monolithic molded plastic material the Arch-Crete forms have been found to release from the concrete surface with ease and minimal concrete residue. This means low maintenance and easy clean up of the forms.
- High quality concrete finish.

Independently of my own observations and those of our distributors and customers, the significant innovation represented by the Arch-Crete construction forming system has been recognized by the industry itself. Merely by way of example:

- The Arch-Crete construction forming system was awarded the Most Innovative Product Award from the World of Concrete Exhibit in 2004. (See Exhibit F). A copy of a portion of a program from the show and an advertisement for Arch-Crete is attached as Exhibit G. A copy of an issue of Concrete Construction entitled “2004 World of Concrete Official Show”

is attached as Exhibit H. It lists Arch-Crete as its first entry in the Decorative Concrete MIP entries. A picture showing our display at the show is attached as Exhibit I.

- Moreover, the Arch-Crete construction forming system has been awarded the Contractors Choice Award as one of the top 25 most viewed and requested of among approximately 50,000 products! (See Exhibit J).

Finally, attached as Exhibit K is a write up that was published in Concrete Decor in the December/January 2006 issue. The article gives the history of Arch-Crete. We were approached at least in part for the article because of interest in the industry concerning the Arch-Crete forming system and its origins.

JP 10-292624

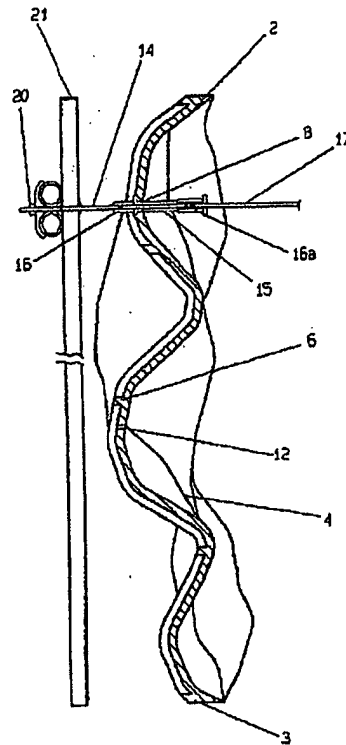
As discussed during the interview and as recognized by the Examiner, there are significant differences between the Arch-Crete forms and the form disclosed in JP 10-292624 (“JP ‘624 publication”). The form disclosed in the ‘624 publication is not formed from a single material (i.e., monolithic) such that in cross-section the material of the form is substantially uniform. First, the individual components that make up the form are not from a single material. For example, paragraph [0008] of the translation of the ‘624 publication states: “a form is assembled on the periphery of the male mold for forming peripheral ribs with any gradient made of plywood plates, corrugated boards, foam boards, steel sheets, aluminum sheets, resin plates, honeycomb plates, etc.” The paragraph goes on to state:

[T]he “composite resin laminate material made of hard resin and elastic resin, etc., having an appropriate quantity of grains and powder of glass, silica, calcium carbonate, carbon, silicon, fluorine [sic, fluorine compounds], etc., mixed in it is coated and sprayed to form a layer with any desired thickness on the male mold surface, followed by applying fibercloth or other reinforcing on it to form a surface pattern layer. Also, fiber mesh or the like is again laminated on the form surface pattern using the composite laminating material and resin, etc., in any desired thickness to form a pattern layer, pattern reinforcing layer, and peripheral rib layer.”

In paragraph [0009] the translation talks about the formed shape being mapped on the internal reinforcing materials of the ribs and that the rib core material that can be cut with a jigsaw or the like is temporarily secured by means of nails, wood screws, adhesive, etc. The paragraph also talks about different types of materials being used as the composite laminating material for laminating the reinforcement to form the mold form.

Second, independently of the components themselves, a significant number of such distinct components are required to make up the form itself. A cross-section of the form is shown in cross section in Figure 8 of the translation, which is reproduced below.

【図8】



As discussed in paragraph [00018]:

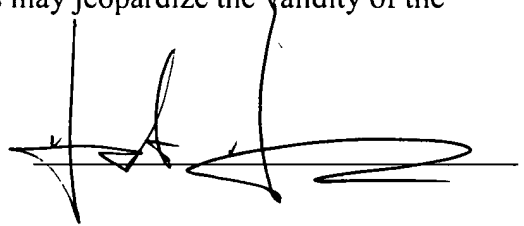
As shown in Figure 8, mold form (2) has peripheral rib layer (3) and grid rib layer (6) formed beforehand in the same shape as that of pattern layer (4). Consequently, it is possible to fasten the form assembly members set on the inner surface of the mold form (2) at the prescribed positions. As the fastening means, the fastening member of separator (14) is screwed on and fixed via reinforcing plate (21) made of steel or hard resin or the like on the other side of the coupling nut (16) screwed to holder (8) embedded in pattern layer (4) and pattern reinforcing layer (5). Then, by screwing on and fixing nut (20) from the washer side of the cylindrical pipe rib of reinforcing plate (21), mold form (2) can be fastened easily with a prescribed spacing maintained. Also, with regard to the positions for embedding holders (3) [sic: (8)] in mold form (2), they are embedded in the pattern layer (4) and pattern reinforcing layer (5).

It is my opinion that the form set forth in the JP '624 publication is significantly different from the Arch-Crete form. I believe that the form disclosed in JP '624 is complicated to

manufacture and easily damaged. In contrast, by molding the entire form from a one-piece, non-metallic, non-wooden monolithic component with a reinforcement matrix integrated with a rear face of the base portion, the resulting form is able to be re-used many times while permitting the use of a substantial and highly distinctive pattern of the types shown to the Examiner during the interview. Moreover, the form is low maintenance, easily handled, safe and extremely durable. It is these characteristics, among others, which were unexpected in the industry over the prior art. As a result, our product has received significant industry accolades, exclusive contracts from the largest players in our industry, and an ever increasing market world-wide among all construction forming systems.

All statements made of the undersigned's own knowledge are true and all statements made on information and belief are believed to be true; and the statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment or both, under 18 U.S.C. § 1001, and such willful false statements may jeopardize the validity of the application or any resulting registration.

Dated: MARCH 6, 2008

A handwritten signature in black ink, appearing to read 'Hatem Hannawa', written over a horizontal line.

Hatem Hannawa